REMARKS

This is a full and complete response to the Office action dated May 31, 2006.

All comments and remarks of record are herein incorporated by reference. Applicant respectfully traverses these rejections and all comments made in the Office action. Nevertheless, in an effort to expedite prosecution, Applicant provides the following remarks regarding the cited references.

DISPOSITION OF CLAIMS

Claims 17-19 and 21-25 are pending in the application.

NON-STATUTORY OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

Claims 17-19 and 21-25 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-18 of copending Application No. 10/359,953 to **Wright et al.** (US 2003/0166776) ("**Wright**"). Applicants provide a terminal disclaimer herewith thereby obviating the obviousness-type double patenting rejection. Favorable action is solicited.

35 USC §103(a) OVER **WRIGHT**

Claims 17-19 and 21-25 stand rejected under 35 USC §103(a) as allegedly obvious over **Wright**. Applicants respectfully traverse this rejection.

Nevertheless, pursuant to 35 USC §103(c), **Wright** is not a proper prior art reference for use under 35 USC §103(a). Applicants respectfully assert that the instant application, Application No. 10/511,992, and **Wright**, at the time the invention of the current application was made, were owned by or subject to an obligation of assignment by the named inventors to Kraton Polymers LLC ("Kraton"). Thus, **Wright** is not a prior art rejection and this rejection is overcome.

35 USC §103(a) OVER **TREPKA** IN VIEW OF **KNOLL** AND **HIMES**

Claims 17-19 and 21-25 stand rejected under 35 USC §103(a) as allegedly obvious over **Trepka et al.** (US 6,265,485) ("**Trepka**") in view of **Knoll et al.** (US 6,197,889) ("**Knoll**") and further in view of **Himes** (US 5,750,622) ("**Himes**"). Applicants respectfully traverse this rejection.

The Examiner alleged that **Trepka** discloses a block having a structure S2-B1/S3-Li, wherein S2 is monovinyl styrene and B1/S3 is a soft block copolymer of a conjugated diene monomer and styrene and meets the current claimed limitations. The Examiner takes the position that although the term "controlled distribution" is not used in **Trepka**, the randomizer acts as a controlling agent for producing a controlled distribution block copolymer of the B/S block.

Applicants respectfully assert that **Trepka**, as well as **Knoll** and **Himes**, do not disclose or suggest a "controlled distribution" having a styrene blockiness of the block B less than 40%, as is recited in the claims.

Applicants refer the Examiner to U.S. Patent Application No. 11/055,318, which also involves "controlled distribution" as set forth in the instant invention. In the prosecution of that application, the Examiner stated on page 5, lines 1 and 2 of the Office action dated August 8, 2006, that "*Trepka does not disclose the low blockiness properties of a block copolymer.*" The issue presented to the Examiner in this application is the same or at least substantial similar and therefore applies in the instant situation as well. As asserted by Applicants, **Trepka** does not disclose or suggest, either alone or in combination with other cited references, the low blockiness properties of a block copolymer.

As discussed in the application, on page 4, lines 19-27, "controlled distribution" is defined as referring to a molecular structure having the following attributes:

(1) terminal regions adjacent to the mono alkenyl arene homopolymer ("A") blocks that are rich in (i.e., have a greater than average amount of) conjugated diene units.

(2) one or more regions not adjacent to the A blocks that are rich in (i.e., have a greater than average amount of) mono alkenyl arene units; and

(3) an overall structure having relatively low blockiness.

The styrene index is a proportion of styrene units in the block B having two styrene neighbors on the polymer chain. See, Application, page 5, lines 9-11. Styrenic blockiness is the percentage of blocky styrene to total styrene units. As an example, a polymer having the structure "Polymer-Bd-S-(S)-n-S-Bd-Polymer", where n is 8, will have a blockiness index of 80%. See Application, page 5, lines 24-35.

According to the claimed invention, the blockiness index of Block B is less than about 40%. Therefore, even in the region of the B block which is rich in mono alkenyl arene units, there will be no unwanted "long runs" of mono alkenyl arene units, such that the styrenic blockiness index of block B will be less than 40%.

This cannot be said of the **Trepka** reference. Applicants respectfully assert that the "tapering" of **Trepka** is strikingly different from the "controlled distribution" copolymer of the claimed invention.

As recited in Trepka, column 7, lines 5-11:

> Choice of randomizer can be used to manipulate the direction of taper in blocks resulting from charges of mixtures of monomers. The taper can be either a graduation from conjugated rich chain to a monvinyl aromatic rich chain or a graduation from a monvinylaromatic rich chain to conjugated diene rich chain according to which monomers enter the chain faster.

Applicants respectfully assert that **Trepka** does not disclose or suggest control of the distribution of monovinyl aromatic to conjugated diene. **Trepka** merely indicates that the direction of the taper can be affected, depending on the choice of the randomizer. As an example, **Trepka** indicates that when tetrahydrofuran is used, the "block tapers gradually from an essentially polybutadiene block to an essentially monovinyl substituted aromatic polymer block." One of ordinary skill in the art would understand an "essentially monovinyl substituted aromatic polymer block" to be nearly pure in monovinyl substituted aromatic monomer and thus be of very high blockiness.

Trepka does not disclose or suggest any preferred amount of styrenic blockiness nor any process for controlling the amount of styrenic blockiness.

This can be seen by the disclosed method in **Trepka** for making the tapered blocks. The polymer blends according to **Trepka** are produced by an initial charge of monovinylaromatic monomer and initiator and a subsequent addition of a second charge of initiator and monovinyl aromatic monomer, followed by a separate charge of a mixture of monovinyl aromatic monomer and conjugated diene, and a subsequent coupling step. See **Trepka**, column 5, lines 5-15. In a second embodiment of **Trepka**, there is a second separate charge of a mixture of monovinyl aromatic and conjugated diene monomers preceding the coupling step. See **Trepka**, column 5, lines 20-23. As can be seen from this method styrenic blockiness will not be controlled.

In contrast to this, the claimed invention requires that the styrenic blockiness be less than 40%. Blockiness can occur if during the polymerization process, conjugated diene concentration drops below the critical level to maintain controlled distribution. See Application, page 5, lines 4-8. Any styrene added after such point will be added in a blocky fashion. See id. One method for avoiding blockiness is illustrated in example 1 of the application.

In Example 1, a styrene monomer was charged to a reactor in step I. Thereafter, in step II, all of the styrene for step II was charged to a reactor with one-half of the butadiene. After titration of the step II reactants, the living polystyrene chains from the step I reactor were transferred to the step II reactor vessel. Subsequently, ten minutes after the initiation of the copolymerization, the remaining one-half of the butadiene monomer was dosed to the reactor. Step III involves charging styrene monomer to the step II reactor. The final polymer structure was (S)-(S/Bd)-(S) with a controlled distribution S/Bd block. See Application, page 11, line 32 to page 13, line 10.

The differences in the two methods as discussed above can be seen in the table as follows:

Trepka '485	An illustrative process for producing a controlled distribution according to the claimed invention
Monovinyl aromatic monomer is charged to a reactor;	Styrene monomer (monovinyl aromatic monomer) is charged to a first reactor;
Initiator is added;	Initiator is added;
Monovinyl aromatic monomer is charged to a reactor;	N/A
Initiator is added	N/A
Mixture of monovinyl aromatic monomer and conjgated diene is charged to the reactor	Styrene and butadiene (conjugated diene) and diethyl ether is charged to a second reactor
N/A	The contents of first reactor are added to second reactor
N/A	Butadiene is added to the second reactor
Resulting polymer is coupled	Styrene block added to the S-B/S block to form SBS
The B (mixed monomer) segments are tapered (having one end of the block being very rich in monovinyl aromatic units and bonded to the coupling agent). Column 5, lines 41-45.	The B block is not tapered but has one S block adjacent to a butadiene rich region of the midblock and a comparatively butadiene rich end adjacent to the other S block with the midblock having low blockiness.

As can be seen in the above table, nothing is disclosed or suggested in **Trepka** that teaches a second addition of conjugated diene after the addition of a mixture of conjugated diene, monovinyl aromatic monomer, and randomizer. The methods as

disclosed in **Trepka** provide no means for avoiding high styrenic blockiness. Thus one of ordinary skill in the art would not be enabled (or motivated for that matter) to prepare the base polymer of the claimed invention in light of **Trepka** in view of **Knoll** and **Himes**.

TEACHING AWAY

The Examiner has also alleged that it would have been obvious to one of ordinary skill in the art to consider that a block copolymer in **Trepka** may have a molecular weight according to **Knoll** because both references disclose the analogous anionic copolymerization process for making a block copolymer comprising the analogous structure and the same ingredients.

However, Applicants respectfully assert that **Knoll** teaches away from combination with the **Trepka**. **Knoll** is directed to a block copolymer having a vinyl aromatic block, and a block of diene and vinylaromatic units which have a strictly random structure. On the other hand, and as described above, **Trepka** is directed to tapered block copolymers.

Applicants respectfully submit that **Knoll** teaches away from tapered polymers, such as those in **Trepka**. This is because the invention of **Knoll** is directed to solving a problem which arises from the use of tapered block polymers. As it is stated in **Knoll** in column 1, lines 58-65,

> It is merely necessary to point out that, in block copolymers having a tapered block transition, the sequence lengths are by no means randomly distributed but that the sequence length of the pure diene phase compared with the polystyrene phase and hence the volume ratio are shifted in favor of the diene phase. This has the disadvantage that the poor properties of the diene polymer are unnecessarily strongly evident in the material behavior during processing.

In view of the above, Applicants respectfully assert that one of ordinary skill in the art would **not** modify **Trepka** in view of **Knoll** because **Knoll** is directed to the use of random distribution block copolymer to solve what, in its view, were deficiencies in

some tapered block copolymers. Therefore, **Knoll** teaches away from tapered block copolymers, as in **Trepka, which is the strongest evidence of non-obviousness.** Applicant respectfully asserts no prima facie case of obviousness has been established.

In light of the foregoing, Applicants respectfully request that the obviousness-type double patenting and 35 USC §103 rejections be withdrawn.

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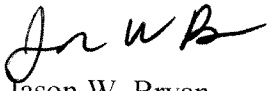
Conclusion

Having addressed all issues set out in the Office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,
NOVAK DRUCE & QUIGG, LLP



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